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LIST OF PUBLICATIONS

JOURNAL PAPERS

Submitted

1. T. Viaud and I. Kontoyiannis. “The sample complexity of lossless data compression.” Submitted.
2. I. Kontoyiannis. “Shakespeare, entropy and educated monkeys.” Submitted.
3. A. Theocarous, L. Gavalakis and I. Kontoyiannis. “Pragmatic lossless compression: Fundamental limits and universality.” Submitted.
4. L. Gavalakis and I. Kontoyiannis. “Conditions for equality and stability in Shannon’s and Tao’s entropy power inequalities.” Submitted.
5. C.K. Lauand, I. Kontoyiannis, S.P. Meyn. “The case for and against fixed step-size: Stochastic approximation algorithms in optimization and machine learning.” Submitted.
6. V. Lungu, J. Shaska, I. Kontoyiannis and U. Mitra. “Bayesian causal discovery: Posterior concentration and optimal detection.” Submitted.
7. P. Włodzimierz, E. Perez-Roman, M. Hong, M. Zhang, L. Oliveira, J. Gonzalez-Isa, K. Jenike, R. Burns, C. Zhou, S. Koppera, M. Becker, N. Gorrige, P. Novak, Y. Mata-Sucre, I. Kontoyiannis, Darwin Tree of Life Consortium, M. Blaxter, A. Marques, J. Macas, R. Durbin, A. Bousios and I.R. Henderson. “Cyclical evolution of centromere architecture across 193 eukaryote species.” Submitted.

Published or in press

8. R. Li, L. Gavalakis and I. Kontoyiannis. “Entropic additive energy and entropy inequalities for sums and products.” To appear, *IEEE Transactions on Information Theory*, 2026.
9. I. Papageorgiou and I. Kontoyiannis. “The Bayesian Context Trees State Space Model for time series modelling and forecasting.” To appear, *International Journal of Forecasting*, 2026.
10. E.M. Loizidou, A. Palaiokrassa, S. Assiedu, A. Simistiras, P. Barbounakis, S. Glentis, M. Anezaki, K.V. Bergersen, I. Chatzimichalis, E. Kotsanopoulou, I. Kontoyiannis, N. Demiris, P. Rouskas, N. Scarmeas, M. Yannakoulia, M. Verykokakis, M. Nair, K. Rouskas and A.S. Dimas. “Short-term animal product restriction alters metabolic profiles and modulates immune function.” To appear, *Communications Medicine*, 2026.
11. O. Johnson, L. Gavalakis and I. Kontoyiannis. “Relative entropy bounds for sampling with and without replacement.” *Journal of Applied Probability*, **62**, no. 4, pp. 1578-1593, December 2025.
12. V. Borkar, S. Chen, A. Devraj, I. Kontoyiannis and S.P. Meyn. “The ODE method for asymptotic statistics in stochastic approximation and reinforcement learning.” *Annals of Applied Probability*, **35**, no. 2, pp. 936-982, April 2025.

13. L. Gavalakis, I. Kontoyiannis and M. Madiman. “The entropic doubling constant and robustness of Gaussian codebooks for additive-noise channels.” *IEEE Transactions on Information Theory*, **70**, no. 12, pp. 8467-8477, December 2024.
14. J. Chen, J. Gibson, I. Kontoyiannis, Y. Liang, S.S. Pradhan, A. Winter, R. Zamir, R.E. Blahut, Y. Oohama, A.B. Wagner and R.W. Yeung. “Editorial: Data, Physics, and Life Through the Lens of Information Theory.” *IEEE Journal on Selected Areas in Information Theory*, Special issue dedicated to the memory of Toby Berger, **5**, pp. iv-xi, December 2024.
15. M. Tapia Costa, I. Kontoyiannis and S.J. Godsill. “Generalised shot noise representations of stochastic systems driven by non-Gaussian Lévy processes.” *Journal of Applied Probability*, **56**, no. 4, pp. 1215-1250, December 2024.
16. I. Papageorgiou and I. Kontoyiannis. “Posterior representations for Bayesian Context Trees: Sampling, estimation and convergence.” *Bayesian Analysis*, **19**, no. 2, pp. 501-529, June 2024.
17. L. Gavalakis and I. Kontoyiannis. “Entropy and the discrete central limit theorem.” *Stochastic Processes and their Applications*, **70**, 104294, April 2024.
18. A. Theocarous, G.G. Gregoriou, P. Sapountzis and I. Kontoyiannis. “Temporally causal discovery tests for discrete time series and neural spike trains.” *IEEE Transactions on Signal Processing*, **72**, pp. 1333-1347, February 2024.
19. I. Kontoyiannis. “Context-tree weighting and Bayesian Context Trees: Asymptotic and non-asymptotic justifications.” *IEEE Transactions on Information Theory*, **70**, no. 2, pp. 1204-1219, February 2024.
20. I. Kontoyiannis, L. Mertzanis, A. Panotopoulou, I. Papageorgiou and M. Skouliaridou. “Bayesian Context Trees: Modelling and exact inference for discrete time series.” *Journal of the Royal Statistical Society: Series B*, **84**, no. 4, pp. 1287-1323, September 2022.
21. I. Kontoyiannis, Y.H. Lim, K. Papakonstantinopoulou and W. Szpankowski. “Compression and symmetry of small-world graphs and structures.” *Communications in Information and Systems*, **22**, no. 2, pp. 275-302, May 2022.
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23. L. Gavalakis and I. Kontoyiannis. “An information-theoretic proof of a finite de Finetti theorem.” *Electronic Communications in Probability*, **26**, paper no. 68, pp. 1-5, December 2021.
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1. O. Johnson, L. Gavalakis and I. Kontoyiannis. “Finite de Finetti bounds in relative entropy.” To appear in *Information Theory, Probability and Statistical Learning: A Festschrift in Honor of Andrew Barron*, (J. Klusowski, I. Kontoyiannis and C. Rush, editors), Springer, 2026.
2. V. Lungu, I. Papageorgiou and I. Kontoyiannis. “Change-point detection and segmentation of discrete data using Bayesian Context Trees.” To appear in *Information Theory, Probability and Statistical Learning: A Festschrift in Honor of Andrew Barron*, (J. Klusowski, I. Kontoyiannis and C. Rush, editors), Springer, 2026.
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SOFTWARE

- S1. T.B. Berrett, I. Kontoyiannis and R.J. Samworth. R package: USP: “U-Statistic Permutation Tests of Independence for all Data Types.” Available at: CRAN.R-project.org/package=USP, November 2020.
- S2. I. Papageorgiou, V.M. Lungu and I. Kontoyiannis. R package: BCT: “Bayesian Context Trees for Discrete Time Series.” Available at: CRAN.R-project.org/package=BCT, version 1.1, November 2020; version 1.2, May 2022.

PATENTS

P1. V. Castelli, I. Kontoyiannis, J. Robinson and J.J. Turek. U.S. Patent No. 6,021,224. "Multiresolution lossless/lossy compression and storage of data for efficient processing thereof." October 2000.

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U1. V. Lungu and I. Kontoyiannis. "Finite-sample expansions for the optimal error probability in asymmetric binary hypothesis testing." *arXiv manuscript*, 2404.09605 [cs.IT], April 2024.

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Vol2. *IEEE 2024 International Symposium on Information Theory.* Proceedings. Edited by C. Fragouli, I. Kontoyiannis and J. Rosenthal. IEEE Press, July 2024. ISBN: 979-8-3503-8284-6.

Vol3. *IEEE 2016 International Symposium on Information Theory.* Proceedings. Edited by V. Anantharam, I. Kontoyiannis, Y. Steinberg and P. Vontobel. IEEE Press, July 2016. ISBN: 978-1-5090-1806-2.

Vol4. *Third Workshop on Information Theoretic Methods in Science and Engineering.* Proceedings. Edited by J. Heikkonen, I. Kontoyiannis, E.P. Liski, P. Myllymaki, J. Rissanen and I. Tabus. Tampere University Press, August 2010. ISBN 978-952-15-2000-6.

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CONFERENCES (papers/talks)

- C1. “Sample complexity bounds for lossless source coding,” with T. Viaud. Submitted.
- C2. “Stability and equality in the entropy power inequality and in one of its discrete counterparts,” with L. Gavalakis. Submitted.
- C3. “Bayesian structure learning and detection in the linear causal model,” with V. Lungu, J. Shaska and U. Mitra. Submitted.
- C4. “Entropy bounds for sums, products, and for the entropic additive energy,” with R. Li and L. Gavalakis. Submitted.
- C5. “Universal data compression at pragmatic rates,” with A. Theodorou and L. Gavalakis. Submitted.
- C6. “The entropy power inequality without assumptions: Equality and stability,” with L. Gavalakis. *International Zurich Seminar on Information and Communications*, Zurich, Switzerland, February 2026.
- C7. “Lossless data compression at pragmatic rates,” with A. Theodorou. *2025 IEEE International Symposium on Information Theory*, Ann Arbor MI, USA, June 2025.
- C8. “Sumsets, doubling, and capacity bounds.” **Invited talk**, *Information Theory & Tapas Workshop*, Madrid, Spain, April 2025.
- C9. “Temporally causal discovery tests for discrete time series and neural spike trains,” with A. Theodorou, G.G. Gregoriou and P. Sapountzis. *2025 IEEE International Conference on Acoustics, Speech, and Signal Processing*, Hyderabad, India, April 2025.
- C10. “Sumset bounds for the entropy on abelian groups.” **Invited talk**, *Combinatorics & Probability in Athens Workshop*, December 2024.
- C11. “Causality testing, directed information and spike trains,” with A. Theodorou, G.G. Gregoriou and P. Sapountzis. *2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 2024.
- C12. “The optimal finite-sample error probability in asymmetric binary hypothesis testing,” with V. Lungu. *2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 2024.
- C13. “A third information-theoretic approach to finite de Finetti theorems,” with M. Berta and L. Gavalakis. *2024 IEEE International Symposium on Information Theory*, Athens, Greece, July 2024.
- C14. “Learning from time series data using information-theoretic methods.” **Keynote talk**, *Foundations Behind the AI Revolution: Optimization, Learning, and Games*, Athens, Greece, July 2024.
- C15. “Information-theoretic approaches to de Finetti-style theorems.” **Invited talk**, *Forty Years at the Interplay of Information Theory, Probability and Statistical Learning*, Yale University, New Haven, CT, April 2024.
- C16. “Optimal finite blocklength bounds in hypothesis testing and channel coding,” with V. Lungu. **Best poster award**, *Forty Years at the Interplay of Information Theory, Probability and Statistical Learning*, Yale University, New Haven, CT, April 2024.

C17. "Extensive metabolic and immune system reprogramming is induced by dietary restriction in humans: An overview of the FastBio project," with C. Emmanouil, A. Simistiras, Ozvan B., Konstantinos R., E. Loizidou, K. Bergersen, P. Mantas, A. Skoulakis, G. Katsoula, P. Barmpounakis, S. Glentis, P. Rouskas, Y.C. Park, A. Dimopoulos, N. Demiris, M. Nair, E. Zeggini and A. Dimas. *Biomedicine, Bioinformatics & Biotechnology Forum*, Athens, Greece, September 2023.

C18. "Time series analysis with Bayesian Context Trees: Classical asymptotics and finite- n bounds." *2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 2023.

C19. "Context-tree weighting for real-valued time series: Bayesian inference with hierarchical mixture models," with I. Papageorgiou. *2023 IEEE International Symposium on Information Theory*, Taipei, Taiwan, June 2023.

C20. "Truly Bayesian entropy estimation," with I. Papageorgiou. *2023 IEEE Information Theory Workshop*, Saint-Malo, France, April 2023.

C21. "Information-theoretic de Finetti-style theorems," with L. Gavalakis. *2022 IEEE Information Theory Workshop*, Mumbai, India, November 2022.

C22. "Bayesian change-point detection via context-tree weighting," with V. Lungu and I. Papageorgiou. *2022 IEEE Information Theory Workshop*, Mumbai, India, November 2022.

C23. "Modelling and inference for time series using Bayesian Context Trees," with I. Papageorgiou. *Greek Stochastics μ'* , Corfu, Greece, August 2022.

C24. "Discrete time series segmentation with Bayesian Context Trees" with V. Lungu and I. Papageorgiou. *Greek Stochastics μ'* , Corfu, Greece, August 2022.

C25. "Bayesian mixture models for time series based on context trees," with I. Papageorgiou. *36th International Workshop on Statistical Modelling*, Trieste, Italy, July 2022.

C26. "The feature-first block model," with L. Tray. *36th International Workshop on Statistical Modelling*, Trieste, Italy, July 2022.

C27. "Bayesian autoregressive mixture models based on context trees," with I. Papageorgiou. *42nd International Symposium on Forecasting*, Oxford, UK, July 2022.

C28. "Entropy in probability and additive combinatorics." **Plenary talk**, *Second Congress of Greek Mathematicians*, Athens, Greece, July 2022.

C29. "Modelling and inference for discrete time-series using Bayesian Context Trees," with I. Papageorgiou and V. Lungu. *IMS Annual Meeting in Probability and Statistics*, London, UK, June 2022.

C30. "The entropic central limit theorem for discrete random variables," with L. Gavalakis. *2022 IEEE International Symposium on Information Theory*, Espoo, Finland, June 2022.

C31. "The posterior distribution of Bayesian context-tree models: Theory and applications," with I. Papageorgiou. *2022 IEEE International Symposium on Information Theory*, Espoo, Finland, June 2022.

C32. "Inference and learning with Context-Tree Weighting." **Invited talk**, *Van der Meulen Seminar*, Eindhoven, The Netherlands, November 2021.

C33. "Revisiting context-tree weighting for Bayesian inference," with L. Mertzanis, I. Papageorgiou, A. Panotonoulou and M. Skouliidou. *2021 IEEE International Symposium on Information Theory*, Melbourne, Australia, July 2021.

C34. "Compression and symmetry of small-world graphs and structures," with Y.H. Lim, K. Papakonstantinopoulou and W. Szpankowski. *2021 IEEE International Symposium on Information Theory*, Melbourne, Australia, July 2021.

C35. "Learning discrete time series with Bayesian Context Trees," with I. Papageorgiou and V. Lungu. **Keynote talk**, *2021 Conference of the Eastern Mediterranean Region, International Biometric Society*, virtual conference, April 2021.

C36. "Compression with different types of side information," with L. Gavalakis. **Invited talk**, *Stanford Compression Workshop*, virtual workshop, February 2021.

C37. “Effective mass-testing rates with SIR epidemic models on random networks,” with J. Taipale and S. Linnarsson. **Invited talk**, *Mathematics of the Pandemic*, virtual workshop, December 2020.

C38. “Variable-dimension MCMC samplers for variable-memory Markov models.” **Invited talk**, *Hausdorff School on MCMC: Recent Developments and New Connections*, virtual workshop, September 2020.

C39. “Suppressing Covid-19: Public health policy and effective mass-testing rates.” **Invited talk**, *2020 Division F Conference*, Department of Engineering, Cambridge, UK, September 2020.

C40. “Lossless data compression with side information: Nonsymptotics and dispersion,” with L. Gavalakis. *2020 IEEE International Symposium on Information Theory*, Los Angeles, CA, USA, June 2020.

C41. “Inference and modelling for asymmetric heavy-tailed stochastic processes,” with S. Godsill and M. Riabiz. **Invited paper**, *Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 2019.

C42. “Simulation and inference for heavy-tailed Lévy processes,” with M. Riabiz and S. Godsill. *Greek Stochastics λ'*, Corfu, Greece, August 2019.

C43. “Bayesian inference for discrete time series using context trees.” **Plenary talk**, *Fifth London Symposium on Information Theory (LSIT)*, London, UK, May 2019.

C44. “Denoising line edge roughness measurement using hidden Markov models,” with G. Papavarios, V. Constantoudis and E. Gogolides. *SPIE Advance Lithography Conference*, San Jose, CA, February 2019.

C45. “New results and exact sample-based methodology for learning in alpha-stable regression models,” with M. Riabiz and S. Godsill. *Greek Stochastics κ'*, Athens, Greece, December 2018.

C46. “Variable-dimensional models for discrete time series.” **Plenary talk**, *European Research Network on System Identification ERNSI 2018*, Cambridge, UK, September 2018.

C47. “Lossy compression coding theorems for arbitrary sources.” **Invited talk**, *Beyond I.I.D. in Information Theory Workshop*, Cambridge, UK, July 2018.

C48. “Deep tree models for ‘Big’ biological data,” with L. Mertzanis, A. Panotonoulou and M. Skoularidou. **Invited paper**, *IEEE International Workshop on Signal Processing Advances in Wireless Communications*, Kalamata, Greece, June 2018.

C49. “Analysis of a one-dimensional continuous DTN model,” with D. Cheliotis, M. Loulakis and S. Toumpis. **Invited paper**, *IEEE International Workshop on Signal Processing Advances in Wireless Communications*, Kalamata, Greece, June 2018.

C50. “Asymptotics of the packet speed and cost in a mobile wireless network model,” with S. Toumpis, R. Cavallari and R. Verdone. *2018 IEEE International Symposium on Information Theory*, Vail, CO, USA, June 2018.

C51. “Sharp Gaussian approximation bounds for linear systems with α -stable noise,” with M. Riabiz, T. Ardeshiri and S. Godsill. *2018 IEEE International Symposium on Information Theory*, Vail, CO, USA, June 2018.

C52. “Bayesian suffix trees and context tree weighting.” **Plenary talk**, *International Zurich Seminar on Communications*, Zurich, Switzerland, February 2018.

C53. “Small Big Data: Temporal structure in discrete time series.” **Invited talk**, *Theoretical & Algorithmic Underpinnings of Big Data Workshop*, Isaac Newton Institute, Cambridge, UK, January 2018.

C54. “Simulated convergence rates with application to an intractable α -stable inference problem,” with M. Riabiz, T. Ardeshiri and S. Godsill. **Invited paper**, *2017 IEEE International Workshop on Computational Advances in Multi-Sensor Adaptive Processing*, Curaçao, Dutch Antilles, December 2017.

C55. “Exact speed and transmission cost in a simple one-dimensional wireless delay-tolerant network,” with D. Cheliotis, M. Loulakis and S. Toumpis. *2017 IEEE International Symposium on Information Theory*, Aachen, Germany, June 2017.

C56. "Exponential ergodicity in a Sobolev space," with A.M. Devraj and S.P. Meyn. **Invited talk**, *PDE and Probability Methods for Interactions*, Sophia Antipolis, France, March 2017.

C57. "Context trees and model selection for discrete time series." **Invited talk**, *2016 IEEE Information Theory Workshop*, Cambridge, UK, September 2016.

C58. "Model selection algorithms for discrete time series." **Keynote lecture**, *11th Athens Colloquium on Algorithms & Complexity*, Athens, Greece, August 2016.

C59. "Testing temporal causality and estimating directed information." **Invited talk**, *Nexus of Information and Computation Theories*, Institut Henri Poincaré, Paris, France, March 2016.

C60. "Entropy bounds on abelian groups and the Ruzsa divergence," with M. Madiman. **Invited talk**, *2016 Information Theory and Applications Workshop*, University of California, San Diego, February 2016.

C61. "Finding structure in data: Bayesian inference for discrete time series." **Invited talk**, *Stochastic Methods in Finance and Physics Workshop*, Heraklion, Greece, July 2015.

C62. "Small trees & long memory: Bayesian inference for discrete time series." **Plenary talk**, *16th Conference of the ASMDA Intern'l Society*, Piraeus, Greece, July 2015.

C63. "The Ruzsa divergence on groups," with M. Madiman. **Invited paper**, *2015 Workshop on Information Theoretic Methods in Science and Engineering*, Copenhagen, Denmark, June 2015.

C64. "Causality and directed information estimation as a hypothesis test," with M. Skouliaridou. **Invited paper**, *2015 Workshop on Information Theoretic Methods in Science and Engineering*, Copenhagen, Denmark, June 2015.

C65. "The entropy of sums and Ruzsa's divergence on abelian groups," with M. Madiman. **Invited paper**, *2013 IEEE Information Theory Workshop*, Sevilla, Spain, September 2013.

C66. "Optimal lossless compression: Source varentropy and dispersion," with S. Verdú. *2013 IEEE International Symposium on Information Theory*, Istanbul, Turkey, July 2013.

C67. "Lossless compression with moderate error probability," with Y. Altuğ and A.B. Wagner. *2013 IEEE International Symposium on Information Theory*, Istanbul, Turkey, July 2013.

C68. "Bayesian model selection and inference for discrete time series." **Invited talk**, *1st Workshop on Cognition and Control*, University of Florida, February 2013.

C69. "Bayesian inference for discrete time series via tree weighting," with M. Skouliaridou and A. Panotopoulou. **Invited paper**, *2012 IEEE Information Theory Workshop*, Lausanne, Switzerland, September 2012.

C70. "Sumset inequalities for differential entropy and mutual information," with M. Madiman. *2012 IEEE International Symposium on Information Theory*, M.I.T., Cambridge, MA, July 2012.

C71. "Lossless data compression rate: Asymptotics and non-asymptotics," with S. Verdú. **Invited paper**, *46th Annual Conference on Information Sciences and Systems*, Princeton, NJ, March 2012.

C72. "Sumset differential entropy bounds," with M. Madiman. **Invited talk**, *International Zurich Seminar on Communications*, Zurich, Switzerland, March 2012.

C73. "Differential entropy sumset bounds." **Invited talk**, *Fourth EPFL-UMLV International Workshop on Random Matrices, Information Theory and Applications*, Paris, France, December 2010.

C74. "Markov chains and the spectra of nonlinear operators," with S.P. Meyn. **Invited talk**, *Young Researchers in Analysis Workshop*, Athens, November 2010.

C75. "Geometric ergodicity and the spectral gap of non-reversible Markov chains," with Sean P. Meyn. **Invited talk**, *Fifth International Workshop on Applied Probability*, Madrid, Spain, July 2010.

C76. "Stochastic analysis of the k -server problem on the circle," with A. Anagnostopoulos, C. Dombry, N. Guillotin-Plantard and E. Upfal. *21st International Meeting on Probabilistic, Combinatorial and Asymptotic Methods for the Analysis of Algorithms* (AofA 2010), June-July 2010.

C77. "The entropies of the sum and the difference of two IID random variables are not too different," with M. Madiman. *2010 IEEE International Symposium on Information Theory*, Austin, TX, June 2010.

C78. "Simulating the mean of a skip-free Markov chain," with K.R. Duffy and S.P. Meyn. *Simulation of Networks Workshop*, Cambridge University, UK, June 2010.

C79. "Superposition codes for Gaussian vector quantization," with K. Rahnama Rad and S. Gitzenis. **Invited paper**, *2010 IEEE Information Theory Workshop*, Cairo, Egypt, January 2010.

C80. "Which spectrum?" with S.P. Meyn. **Invited talk**, *Athens Workshop on MCMC Convergence and Estimation*, Athens, Greece, September 2009.

C81. "Three non-asymptotic results in source coding and probability." **Plenary talk**, *2009 Workshop on Information Theoretic Methods in Science and Engineering*, Tampere, Finland, August 2009.

C82. "Waiting and matching: Patterns and entropy." **Invited series of talks**, *Greek Stochastics α'* , Lefkada, Greece, August 2009.

C83. "Control variates for MCMC." *Greek Stochastics α'* , with P. Dellaportas and Z. Tsourtis. Lefkada, Greece, August 2009.

C84. "A criterion for the compound Poisson distribution to be maximum entropy," with O. Johnson and M. Madiman. *2009 IEEE International Symposium on Information Theory*, Seoul, Korea, July 2009.

C85. "Efficient random codebooks and databases for lossy data compression," with C. Gioran. **Invited paper**, *2009 IEEE Information Theory Workshop*, Volos, Greece, June 2009.

C86. "Information-theoretic ideas in Poisson approximation and estimation." **Invited talk**, *Interface between Information Theory and Estimation Theory Workshop*, Princeton University, April 2009.

C87. "Control variates as screening functions," with S. Kyriazopoulou-Panagiotopoulou and S.P. Meyn. *Third International Conference on Performance Evaluation Methodologies and Tools*, Athens, Greece, October 2008.

C88. "An information-theoretic development of compound Poisson approximation," with A.D. Barbour, O. Johnson and M. Madiman. **Invited talk**, *Second EPFL-UMLV International Workshop on Entropy*, Lausanne, Switzerland, September 2008.

C89. "Entropy and the 'compound' law of small numbers." with O. Johnson and M. Madiman. **Invited talk**, *2008 Workshop on Information Theoretic Methods in Science and Engineering*, Tampere, Finland, August 2008.

C90. "Information-theoretic bounds for compound Poisson approximation," with A.D. Barbour, O. Johnson and M. Madiman. *7th World Congress in Probability and Statistics*, Singapore, July 2008.

C91. "Thinning and information projections," with P. Harremoës and O. Johnson. *2008 IEEE International Symposium on Information Theory*, Toronto, Canada, July 2008.

C92. "Counting the primes using entropy." **Invited paper**, *2008 IEEE Information Theory Workshop*, Porto, Portugal, May 2008.

C93. "On the spectral theory of Markov chains." **Invited paper**, *12th Panhellenic Conference in Mathematical Analysis*, Athens, Greece, May 2008.

C94. "Statistical dependence in biological sequences," with H.M. Aktulga, L. Lyznik, L. Szpankowski, A.Y. Grama and W. Szpankowski. *2007 IEEE International Symposium on Information Theory*, Nice, France, June 2007.

C95. "Thinning and the law of small numbers," with P. Harremoës and O. Johnson. *2007 IEEE International Symposium on Information Theory*, Nice, France, June 2007.

C96. "Fisher information, compound Poisson approximation, and the Poisson channel," with M. Madiman and O. Johnson. *2007 IEEE International Symposium on Information Theory*, Nice, France, June 2007.

C97. "Exponential bounds and stopping rules for MCMC and general Markov chains," with L.A. Lastras-Montaño and S.P. Meyn. **Invited paper**, *First International Conference on Performance Evaluation Methodologies and Tools*, Pisa, Italy, October 2006.

C98. "Information-theoretic ideas in Poisson approximation and concentration." **Invited series of talks**, *LMS/EPSRC Meeting on Stochastic Stability, Large Deviations and Coupling Methods*, Edinburgh, UK, September 2006.

C99. "On estimating the rate-distortion function," with M. Harrison. *2006 IEEE International Symposium on Information Theory*, Seattle, WA, July 2006.

C100. "From the entropy to the statistical structure of spike trains," with Y. Gao and E. Bienenstock. *2006 IEEE International Symposium on Information Theory*, Seattle, WA, July 2006.

C101. "Entropy estimation: Simulation, theory and a case study." **Invited paper**, *2006 IEEE Information Theory Workshop*, Punta del Este, Uruguay, March 2006.

C102. "From Poisson approximation to compound Poisson concentration via entropy." **Invited talk**, *First EPFL-UMLV International Workshop on Entropy*, Lausanne, Switzerland, February 2006.

C103. "Combining information from different sources: Some surprising phenomena," with B. Lucena. **Invited paper**, *10th Panhellenic Conference on Informatics*, Volos, Greece, November 2005.

C104. "Filtering: The case for *noisier* data," with B. Lucena. *2005 IEEE Information Theory Workshop*, Rotorua, New Zealand, September 2005.

C105. "Mutual information, synergy and some curious phenomena for simple channels," with B. Lucena. *2005 IEEE International Symposium on Information Theory*, Adelaide, Australia, September 2005.

C106. "Relative entropy and exponential deviation bounds for general Markov chains," with L. Lastras-Montaño and S.P. Meyn. *2005 IEEE International Symposium on Information Theory*, Adelaide, Australia, September 2005.

C107. "Concentration and relative entropy for compound Poisson distributions," with M. Madiman. *2005 IEEE International Symposium on Information Theory*, Adelaide, Australia, September 2005.

C108. "Sobolev inequalities, Poisson approximation and concentration." **Invited paper**, *7th Hellenic European Conference on Computer Mathematics & its Applications*, Athens, Greece, September 2005.

C109. "Entropy, compound Poisson approximation, log-Sobolev inequalities and measure concentration," with M. Madiman. *2004 IEEE Information Theory Workshop*, San Antonio, TX, October 2004.

C110. "Minimum Description Length vs. Maximum Likelihood in lossy data compression," with M. Harrison and M. Madiman. *IEEE International Symposium on Information Theory*, Chicago, IL, July 2004.

C111. "Estimating the entropy rate of spike trains," with Y. Gao and E. Bienenstock. **Invited paper**, *38th Annual Conference on Information Sciences and Systems*, Princeton, NJ, March 2004.

C112. "Poisson approximation via entropy," with P. Harremoës and O. Johnson. *Second International Workshop on Applied Probability*, Piraeus, Greece, March 2004.

C113. "Lempel-Ziv and CTW entropy estimators for spike trains," with Y. Gao and E. Bienenstock. **Invited paper**, *Estimation of entropy Workshop*, *2003 Neural Information Processing Systems Conference*, Vancouver, BC, Canada, December 2003.

C114. "The advantage of balanced-allocation routing for ATM networks," with A. Anagnostopoulos and E. Upfal. *2003 IEEE International Symposium on Information Theory*, Yokohama, Japan, July 2003.

C115. "Mismatched codebooks and the role of entropy-coding in lossy data compression," with R. Zamir. *2003 IEEE International Symposium on Information Theory*, Yokohama, Japan, July 2003.

C116. "Entropy and the law of small numbers," with P. Harremoës. *2003 IEEE International Symposium on Information Theory*, Yokohama, Japan, July 2003.

C117. "Maximum likelihood estimation for lossy data compression," with M. Harrison. **Invited paper**, *40th Annual Allerton Conference on Communication, Control, and Computing*, Allerton, IL, October 2002.

C118. "Source coding exponents for zero-delay coding with finite memory," with N. Merhav. *2002 IEEE International Symposium on Information Theory*, Lausanne, Switzerland, July 2002.

C119. "Arbitrary source models and Bayesian codebooks in rate-distortion theory," with J. Zhang. *2002 IEEE International Symposium on Information Theory*, Lausanne, Switzerland, July 2002.

C120. "Unified error exponents: Hypothesis testing, data compression, and measure concentration," with A.D. Sezer. **Invited paper**, *Barcelona Conference on Stochastic Inequalities and Their Applications*, Spain, June 2002; published in *Progress in Probability*, vol. 56, pp. 23-32, Birkhauser Basel/Switzerland, 2003.

C121. "MDL ideas in lossy data compression." **Invited talk**, *MSRI Information Theory Workshop*, Berkeley, CA, March 2002.

C122. "The ODE method and spectral theory of Markov operators," with J. Huang and S.P. Meyn. **Invited paper**, *Proceedings of the Stochastic Theory and Control Workshop*, Springer, New York, pp. 205-221, B. Pasik-Duncan (Editor), 2002.

C123. "Precise limit theorems and multiplicative ergodicity for Markov processes," with S.P. Meyn. *11th INFORMS Applied Probability Society Conference*, New York, NY, July 2001.

C124. "Limit theorems and some spectral theory for geometrically ergodic Markov chains." **Plenary talk**, *Conference on Stochastic Processes and their Applications*, Cambridge, UK, July 2001.

C125. "Sphere-covering and measure concentration as source coding theorems." *2001 IEEE International Symposium on Information Theory*, Washington, D.C., June 2001.

C126. "Estimating the entropy of discrete distributions," with A. Antos. *2001 IEEE International Symposium on Information Theory*, Washington, D.C., June 2001.

C127. "Unified spatial diversity combining and power allocation schemes for CDMA systems," with J. Zhang and E.K.P. Chong. *GLOBECOM 2000*, San Francisco, CA, December 2000.

C128. "Critical behavior in source coding," with A. Dembo. *2000 International Symposium on Information Theory and Its Applications*, Honolulu, Hawaii, November 2000.

C129. "On rate-distortion theory as a convex selection problem." **Invited paper**, *38th Annual Allerton Conference on Communication, Control & Computing*, October 2000.

C130. "Probabilistic phenomena in data compression." **Invited talk** at the *Sixth International Seminar on the Analysis of Algorithms*, Krynica Morska, Poland, July 2000.

C131. "Model selection via rate-distortion theory." **Invited paper**, *34th Annual Conference on Information Sciences and Systems*, Princeton, NJ, March 2000.

C132. "Probabilistic results for sphere packing in high dimensions." *1999 Joint Statistical Meetings of IMS-ASA-ENAR/WNAR*, Baltimore, MD, August 1999.

C133. "How well does the Shannon codebook compress?" *1999 Canadian Information Theory Workshop*, Kingston, Ontario, June 1999.

C134. "Asymptotically optimal lossy Lempel-Ziv coding." *1998 IEEE International Symposium on Information Theory*, MIT, Cambridge, MA, August 1998.

C135. "Generalized waiting times and efficient lossy coding for memoryless sources." *1998 IEEE Information Theory Workshop*, San Diego, CA, February 1998.

C136. "Second-order analysis of lossless and lossy versions of Lempel-Ziv codes." **Invited paper**, *31st Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, CA, November 1997.

C137. "The asymptotics of waiting times between stationary processes." *1997 Joint Statistical Meeting of IMS-ASA-ENAR/WNAR*, Anaheim, CA, August 1997.

C138. "On the distribution of recurrence times and the exact asymptotics of Lempel-Ziv coding." *1997 IEEE International Symposium on Information Theory*, Ulm, Germany, June-July 1997.

C139. "Two refinements to Shannon's source coding theorem." *1997 IEEE International Symposium on Information Theory*, Ulm, Germany, June-July 1997.

C140. "Progressive classification in the compressed domain for large EOS satellite databases," with V. Castelli, C.S. Li and J.J. Turek. *1996 IEEE International Conference on Acoustics, Speech and Signal Processing*, Atlanta, GA, May 1996.

C141. "Stationary entropy estimation via string matching," with Yu.M. Suhov. *The Data Compression Conference DCC 96*, Snowbird, UT, April 1996.

C142. "Prefixes and the entropy rate for long-range sources," with Yu.M. Suhov. *1994 IEEE International Symposium on Information Theory*, Trondheim, Norway, June 1994.

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